

Miguel Jiménez

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Ph.D. candidate exploring the development- and run-time frontier to automate the evolution of cloud systems. I have industry experience and academic training in development for web and cloud, language engineering, and applied research.

EDUCATION

Ph.D. in Computer Science

University of Victoria
Exp. Dec 2020 | Victoria, Canada

M.Sc. in Software Engineering

Universidad Icesi
Aug 2016 | Cali, Colombia
Thesis: [A framework for generating and deploying dynamic performance monitors for self-adaptive systems](#)

B.E. in Systems Engineering

Universidad Icesi
Feb 2014 | Cali, Colombia
Thesis: [PaSCAni: A language for V&V of functional requirements at run-time](#)

CONTINUING EDUCATION

 Machine Learning and IoT
Foundations-IBM ([Badge](#))

 Software Engineering Lifecycle of
IoT Systems-NSERC DITA

 Entrepreneurship Laboratory with
Mobile Technologies-MIT AITI

SELECTED AWARDS

2019 [First place](#) in DITA Hackathon
2019 Best Poster Presentation CSER
2017+ UVic Graduate Award (3 times)
2017 IBM Advanced Studies Grant
2017 [Cleanest Code](#) at HackUVic

SKILLS

Teamwork
Desire to learn
Excellent technical communication

TECHNICAL SKILLS

Architecture Design
Continuous Delivery
Cloud Computing
Machine Learning
Language Engineering
Object-Oriented Programming
Software Deployment
Web programming

PROGRAMMING

Java • Xtend • JavaScript • CSS •
HTML • C • Python • \LaTeX • C#
• Shell • Android (familiar) • SQL

PERSONAL INTERESTS

Gym, Soccer, Hackathons

INDUSTRY EXPERIENCE

Freelance Developer

Carvajal Espacios
2015 | Cali, Colombia

[Play! framework \(Java\)](#) [Spring Data JPA](#) [Hibernate](#) [PostgreSQL](#) [HTML](#) [CSS](#) [JavaScript](#) [Git](#)

- Designed and developed a web application for the purchasing department to manage raw material catalogs and suppliers as well as material search statistics (team of 2).
- Designed the database relations and built an interactive statistics dashboard.
- Led meetings with the customer to elicit the software requirements, and coordinated with the IT team to deploy the application to the customer's infrastructure.
- Effectively planned and coordinated development tasks for two developers.

Laboratorios LaFrancol
2015 | Cali, Colombia

[C#](#) [ASP.NET MVC](#) [Entity Framework](#) [MSSQL Server](#) [NodeJS](#) [HTML](#) [CSS](#) [JavaScript](#) [Git](#)

- Designed and developed a web application for the purchasing department to create online auctions and invite partner suppliers to bid (team of 2).
- Implemented a backend service to handle live bids through WebSockets and the communication protocol with the frontend.
- Led meetings with the customer for requirements elicitation and training sessions.

SQL Soluciones Informáticas
2012 | Cali, Colombia

[C#](#) [ASP.NET MVC](#) [Entity Framework](#) [MSSQL Server](#) [HTML](#) [CSS](#) [JavaScript](#) [Git](#)

- Advised the customer on hard/software purchasing and technical decision making.
- Designed and developed an information system for a premier trolley service for ticket management, printing, and selling, as well as identity and role management (team of 2).

Software Developer | SQL Soluciones Informáticas
2009 – 2010 | Cali, Colombia

[PowerBuilder](#) [PHP](#) [PostgreSQL](#) [HTML](#) [CSS](#) [JavaScript](#) [Adobe Photoshop](#) [Adobe After Effects](#)

- Deployed and managed the corporate website, customer support portal, and online store using Joomla! and Drupal.
- Developed a content management site for documentation and video tutorials, increasing customer satisfaction and supporting a market expansion. Recorded and edited 90+ training videos.
- Designed the user interface of new software components and improved the user experience and interface of existing ones.
- Created advertisement for digital and print marketing campaigns.

SELECTED PROJECTS

jQuery.Stacky github.com/jachinte/jquery.stacky

249 Stars / 22 Forks [JavaScript](#) [jQuery](#) [npm](#) [bower](#) [require.js](#) [SASS](#)

Stacky makes it easy to create UIs with panels that open horizontally using jQuery. Panels can be opened in floating or regular mode, closed, expanded and collapsed. Open and close event callbacks allow to set or retrieve data to/from the panels.

jQuery.SecretNav github.com/jachinte/jquery.secretnav

73 Stars / 14 Forks [JavaScript](#) [jQuery](#) [npm](#) [bower](#) [require.js](#) [SASS](#)

SecretNav is a small jQuery push menu plugin that slides out an off-canvas navigation from the edge of the screen while pushing the main content away with a fancy CSS3 powered 3D perspective effect.

RESEARCH EXPERIENCE

Graduate Research Assistant | Rigi Research Group

Aug 2016 – Present | University of Victoria, Canada

Java Gradle Maven Xtend Eclipse Xtext Eclipse EMF OpenStack VMware vSphere Infrastructure-as-Code Terraform Git

- Filed an invention disclosure (in revision).
- Published 13 refereed journal, conference and workshop papers on Software Deployment, Continuous Experimentation at Run-time, DevOps and related topics.
- Presented 15+ contributed and invited talks / posters.
- Runner-up for IBM CAS Project of the Year among 55 projects.
- Runner-up for IBM CAS Student of the Year among 124 graduate students.
- Participate in industry collaborative projects with IBM as a lead student, including **Reverse Engineering Deployment Specifications from Running Systems** and **Cognitive IoT Recipe Maven**.
- Implemented a proof of concept middleware to support the automated evolution of Infrastructure-as-Code specifications based on run-time adaptations to a cloud system running on VMware vSphere and OpenStack.
- Designed and developed of a conversational agent for the smart kitchen based on user, fridge and store contexts (team of 2).
- Implemented proof-of-concept applications, including a **ReactJS** web application for a smart recipe recommender and an **Android** application for the management of dietary restrictions.

Graduate Research Assistant | i2T/DRISO Research Group

Jan 2014 – Aug 2016 | Universidad Icesi, Colombia

Java JEE Maven Eclipse Xtext RabbitMQ Elasticsearch InfluxDB FraSCaTi Git SVN

- Published 1 refereed journal paper and 2 refereed conference papers.
- Participate in industry collaborative projects with Carvajal Tecnología y Servicios as a young researcher, including **Processing of Large and Complex XML Documents** and **Context-Driven Route Optimization for Home Health**.
- Developed **Amelia**, a domain-specific language to automate the configuration and deployment of more than 300 experimental trials. The language addressed the following challenges: variability in architectural configurations, dependency management, coordination control, modularity and composability, reusability and extensibility.
- Developed **PaSCAni**, a domain-specific language to specify, generate and deploy performance monitors to introspect service-oriented applications at run-time.
- Participated in technology transfer activities to adapt the asymmetric traveling salesman problem with time windows (ATSP-TW) to Carvajal's home-health product.
- Implemented a test case generator for the ATSP-TW using a uniform distribution to randomly select categorical values.
- Compared and characterized major providers of map libraries / APIs and selected the most adequate based on numerical criteria.
- Managed the computing resources of the DRISO research group's computing grid (15 physical machines)

Research Assistant Intern | i2T/DRISO Research Group

Jun 2013 – Dec 2013 | Universidad Icesi, Colombia

Proposed and implemented various component-based strategies in **Java** for the matrix chain multiplication problem and conducted quantitative experiments to test their scalability.

GRADUATE TEACHING

University of Victoria

2016 - 2018 | Victoria, Canada

C Java Maven Shell script ReactJS ElectronJS NodeJS Git

- Held the following teaching positions:
 - Lead Graduate Teaching Assistant for Fundamentals of Programming with Engineering Applications. Falls 2016 - 2018.
 - Graduate Consultant at the Assistance Centre in Computer Science. Spring 2018.
 - Graduate Teaching Assistant for Data Structures. Fall 2016.
- Lectured weekly labs and assisted students with programming and lab assignments.
- Tutored students and assisted them with programming assignments in one-on-one sessions for 1st, 2nd, and 3rd year courses.
- Co-led weekly meetings and developed teaching material and quizzes.
- Developed **examgen**, a program to generate examinations along with their solutions from a **YAML** input file. The resulting files are rendered to either \LaTeX or Moodle. Examgen allowed us to stop printing **2800** quizzes and reduced marking time by **30h** per term.
- Developed **grade-buddy** to assist teaching assistants and professors in automating the marking of programming assignments.
- Developed an **installation assistant** to ease the installation of CLion and its dependencies on Windows, Mac, and Linux.
- Deployed and managed an online platform to host and mark programming assignments.